



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,234	08/17/2005	Patrick Wheeler	16170.2	1825

22913 7590 10/16/2008
WORKMAN NYDEGGER
60 EAST SOUTH TEMPLE
1000 EAGLE GATE TOWER
SALT LAKE CITY, UT 84111

EXAMINER

LAXTON, GARY L

ART UNIT	PAPER NUMBER
----------	--------------

2838

MAIL DATE	DELIVERY MODE
-----------	---------------

10/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/511,234

Applicant(s)

WHEELER ET AL.

Examiner

Gary L. Laxton

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,8,10-13,15,17 and 23-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8,10-13,15,17 and 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-4, 6, 8, 10-13, 15, 17 and 23-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6, 8, 10-13, 15, 17 and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernet in view of Schauder (US 5,594,636).

Bernet discloses a matrix converter (fig. 1) having an input terminal (e.g. i_{i1} or i_{i2} or i_{i3}) and an output terminal (e.g. i_{o1} or i_{o2} or i_{o3}) and current commutation circuitry with bidirectional switches (Cr11, Cr21, Cr23 etc.) each switch directly connected between the input terminal and the output terminal and arranged in a configuration to begin initiation of one switch before deactivation of another switch wherein the current commutation interval is minimized and is considered to approach zero. And, a first switch and a second switch whereby, in a first mode in use, the first switch is activated and the second switch is not activated, and the current commutation circuitry means is operable to activate the second switch means before the first switch means is deactivated (e.g. fig. 5-7). The switch timing is commutated.

However, Bernet does not disclose a controller controlling timing operations of the switches nor does Bernet disclose the delay times or plurality of timers to achieve commutations intervals to activate and deactivate the switches.

Schauder teaches using a controller, figure 6, which controls timing operations of the switches and includes identifying delay times for a plurality of timers (e.g. 66, 71, 73a-c) to activate and deactivate the switches; in order to provide the switch circuits of a switching group to be enabled, and have a second switch circuit within a group be enabled while a first switch circuit within the same switching group is still energized with the load current. This permits natural commutation from the first switch circuit to the second switch circuit to occur whenever possible during the overlapping period of first switch circuit and second switch circuit enabling.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Bernet to include a controller a controller controlling timing operations of the switches and to identify delay times of plurality of timers to achieve commutations intervals to activate and deactivate the switches as taught by Schauder in order to provide the switch circuits of a switching group to be enabled, and have a second switch circuit within a group be enabled while a first switch circuit within the same switching group is still energized with the load current which permits natural commutation from the first switch circuit to the second switch circuit to occur whenever possible during the overlapping period of first switch circuit and second switch circuit enabling

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Schauder.

Schauder discloses a matrix converter comprising: a matrix switch arrangement including at least a first and a second power semiconductor bi-directional switch (fig. 2a); a micro-controller (60) that generates a pulse width modulation output; a controller (63) that interfaces with the micro-controller to generate output waveforms in the matrix switch arrangement according to the pulse width modulation output of the micro-controller, wherein the controller sets a commutation time using a plurality of timers to effect an overlap between turning off the first bi-directional switch and turning on a second bi-directional switch in order to generate the determined commutation time (e.g. abstract; col. 2 lines 22-47).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (571) 272-2079. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on (571) 272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gary L. Laxton/
Primary Examiner
Art Unit 2838

10/14/2008